



NSAI
Agrément

**IRISH AGRÉMENT BOARD
CERTIFICATE NO. 23/0439**

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IKO PERMAPHALT ROOF WATERPROOFING SYSTEM

NSAI Agrément (Irish Agrément Board) is designated by Government to carry out European Technical Assessments.

NSAI Agrément Certificates establish proof that the certified products are 'proper materials' suitable for their intended use under Irish site conditions, in accordance with TGD Part D of the second schedule of the Building Regulations 1997 and subsequent revisions.

PRODUCT DESCRIPTION

This Agrément Certificate relates to the IKO Permaphalt Roof Waterproofing System⁽¹⁾. The system is based on a formulated mastic asphalt made from a combination of refined bitumen, polymers and other additives. The membrane is applied in two layers of molten mastic asphalt to provide a waterproofing layer with a nominal coating thickness of 20mm.

In the opinion of NSAI, the IKO Permaphalt roof waterproofing system as described in this Certificate, complies with the requirements of the Building Regulations 1997 and subsequent amendments.

USE

The system is for use as a waterproofing layer on flat roofs and zero fall roofs with limited access. The system can be used in green roofs, roof gardens, biodiverse roofs, brown roofs and blue roof specifications in combination with a stormwater attenuation system⁽²⁾.

¹ Hereinafter referred to as the 'System'.

² The storm water attenuation system is outside the scope of this certificate.

MANUFACTURE AND MARKETING

The product is manufactured by:

IKO PLC
Prospect Quarry,
Grangemill,
Matlock,
DE4 4BW,
United Kingdom

In Ireland, the product distribution, technical support and sales are performed by:

IKO Ltd.
Unit 502,
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Ireland
D15 CP3V
Tel: 01 885 5090
Email: waterproofing@iko.ie
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Readers are advised to check that this Certificate has not been withdrawn or superseded by a later issue by contacting NSAI Agrément, NSAI, Santry, Dublin 9 or online at www.nsai.ie

1.1 ASSESSMENT

In the opinion of NSAI Agrément, the Permaphalt Roof Waterproofing System, if installed, used and maintained in accordance with this Certificate, can meet or contribute to meeting the requirements of the Irish Building Regulations as indicated in Clause 1.2 of this Agrément Certificate.

1.2 IRISH BUILDING REGULATIONS

REQUIREMENT:

Part B Volume 1 – Fire Safety B4 – External Fire Spread

When used in accordance with this certificate and with suitable finishing layers, the system can meet the relevant requirements of TGD Part B4. See section 4.1 for further information.

Part B Volume 2 – Fire Safety B9 – External Fire Spread

When used in accordance with this certificate and with suitable finishing layers, the system can meet the relevant requirements of TGD Part B4. See section 4.1 for further information.

Part C – Site Preparation and Resistance to Moisture C4 – Resistance to Weather and Ground Moisture

The System can meet the relevant requirements of TGD Part C4, when installed in accordance with this Certificate.

Part D - Materials and Workmanship D1 - Materials and workmanship

The System when used in accordance with this NSAI Agrément Certificate can meet the requirements of TGD Part D1.

D3 – The System, as certified in this NSAI Agrément Certificate, is manufactured from materials which are 'proper materials' fit for their intended use.

2.1 PRODUCT DESCRIPTION

The Permaphalt Roof Waterproofing System consists of a hot applied mastic asphalt made from a combination of refined bitumen, polymers, fillers and other additives. The material is melted at the installation location in a purpose-built machine and is applied to a separating layer on a prepared structural deck in two nominal 10mm coats. The membrane is protected using a suitable protection layer to achieve the necessary resistance to solar UV rays, solar heat gain and the combustibility rating required for a project.

2.2 ANCILLARY ITEMS

The membrane is used in conjunction with a range of protection membranes and boards depending on the roof specification outputted by a project specific design. Products which may be used with the system but are outside the scope of this certificate include:

- Separating/isolating/vapour control membranes
- Insulation
- Solar reflective paint
- Protective paving
- High Bond Primer

2.3 MANUFACTURE

Permaphalt is manufactured by a batch-blending process, by mixing a polymer-modified bitumen with limestone filler, graded limestone coarse aggregates and other additives.

2.4 QUALITY CONTROL

The NSAI has assessed and agreed the following with respect to the quality control of the waterproofing membrane:

- The quality control procedures and product testing to be undertaken have been agreed, documented, and implemented within the company quality management system. The management system of IKO PLC has been assessed and registered as meeting the requirements of IS EN ISO 9001 : 2015 by BSI (Certificate Q05233), IS EN ISO 14001 : 2015 by Lucideon (Certificate 24709) and BES 6001 : Issue 3.1 by Lucideon (Certificate 24703).
- The quality control procedures implemented for batches of incoming materials have been assessed and agreed.
- The production process has been audited and verified that it is in accordance with the documented process.

- The investigative procedures and management of non-conformities has been evaluated for effectiveness.
- Agreed to verify the above measures on a regular basis through a surveillance process.

2.5 DELIVERY, STORAGE AND MARKING

The Permaphalt compound is moulded into 20kg blocks which are stacked on a pallet and shrink wrapped for transport. Each pallet receives a pallet label which contains the following information:

- Product Name
- Product Code
- Pallet weight and Quantity of Blocks
- Manufacturing Order Number
- Recommended Laying Temperature
- Maximum Temperature
- Storage Information
- NSAI Agrément identification mark incorporating the number of this Certificate

The Certificate holder has taken the responsibility of classifying and labelling the system under the CLP Regulation (EC) No 1272/2008 on the classification, labelling and packaging of substances and mixtures. Users must refer to the relevant Safety Data Sheet(s).

2.6 INSTALLATION

2.6.1 APPROVED INSTALLERS

All installation work must be carried out in accordance with the manufacturer's installation instructions by licensed IKO roofing contractors. All installation works must be carried out under the supervision of a person qualified as a level 2 Mastic Asphalt Apprentice to the UK National Vocational Qualifications framework. All works must comply with the initial, interim and final inspection regime operated by IKO.

2.6.2 INSTALLATION PROCEDURE

Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs. Installation of IKO Permaphalt should be carried out using the techniques for laying mastic asphalt described in the relevant clauses of BS 8218 and in accordance with the Certificate holder's instructions. Typical roof build-ups incorporating the system are shown in Figure 1. Typical installation details are shown in Figure 2. Where applicable, details are to be worked in accordance with BS 8212 – Code of practice for mastic asphalt roofing.

On completion of the second layer, the final coat is rubbed with coarse sharp sand using a wooden float. Before a solar protection coating is applied, the roof surface must be completely dry and free of dirt. For solar protection, or for protection against foot traffic, Permaphalt should have one of the following surface finishes in accordance with BS 8218:

- (a) stone chippings of limestone, granite, gravel, calcined flint, calcite, feldspar or similar, of 14 mm nominal size, free from dust, bedded in a suitable compound
- (b) stone aggregate of 20 mm nominal size, loose laid, but secured around outlets
- (c) light-coloured pedestrian tiles bedded in a compound in accordance with the tile manufacturer's recommendations, particularly where continuous foot traffic is expected
- (d) concrete paving slabs or similar bedded in cement/sand mortar bed on a loose-laid isolating membrane
- (e) concrete paving slabs on shims or proprietary spacers and timber decking systems. In all cases measures must be taken to ensure that the asphalt is protected from the risk of indentation
- (f) solar reflective paint, applied and maintained in accordance with the Certificate Holder's and the paint manufacturer's recommendations.

If point loads or continuous foot traffic is expected, surface finishes described in sections 13.4(c), (d) and (e) are recommended.

2.6.3 MAINTENANCE

Adequate provision should be made in the initial design phase for access and maintenance over the life of the system. Roofs must be the subject to six monthly inspections, in accordance with section 7 of BS 6229 to ensure continued performance. Maintenance should include checks and operations to ensure that the system and drainage outlets are free from the build-up of silt and other debris, and that protection layers, e.g., walkways, are in good condition. In the event of the system being contaminated by oil, grease or other chemicals, the advice of the Certificate holder must be sought. Should damage occur, or alterations to the roof structure be required, the recommendations of BS 8218, Section 11 - Maintenance and Repair, should be followed as soon as possible. The system should be reinstated to the original specification. The advice of the Certificate holder should be sought in all cases.

2.6.4 DURABILITY

The assessment indicates that the system is capable of lasting in excess of 50 years providing it is designed, installed and maintained in accordance with this Certificate. Any damage to the surface finish must be repaired immediately and regular inspections and maintenance shall be undertaken as outlined in Section 2.6.3 of this Certificate.

2.7 ENVIRONMENTAL INFORMATION

2.7.1 COMPONENT MATERIALS

The component materials have been assessed and registered as meeting the requirements of BES 6001 - Responsible Sourcing of Construction Products. See section 2.4 for certificate details.

2.7.2 MANUFACTURING PROCESS

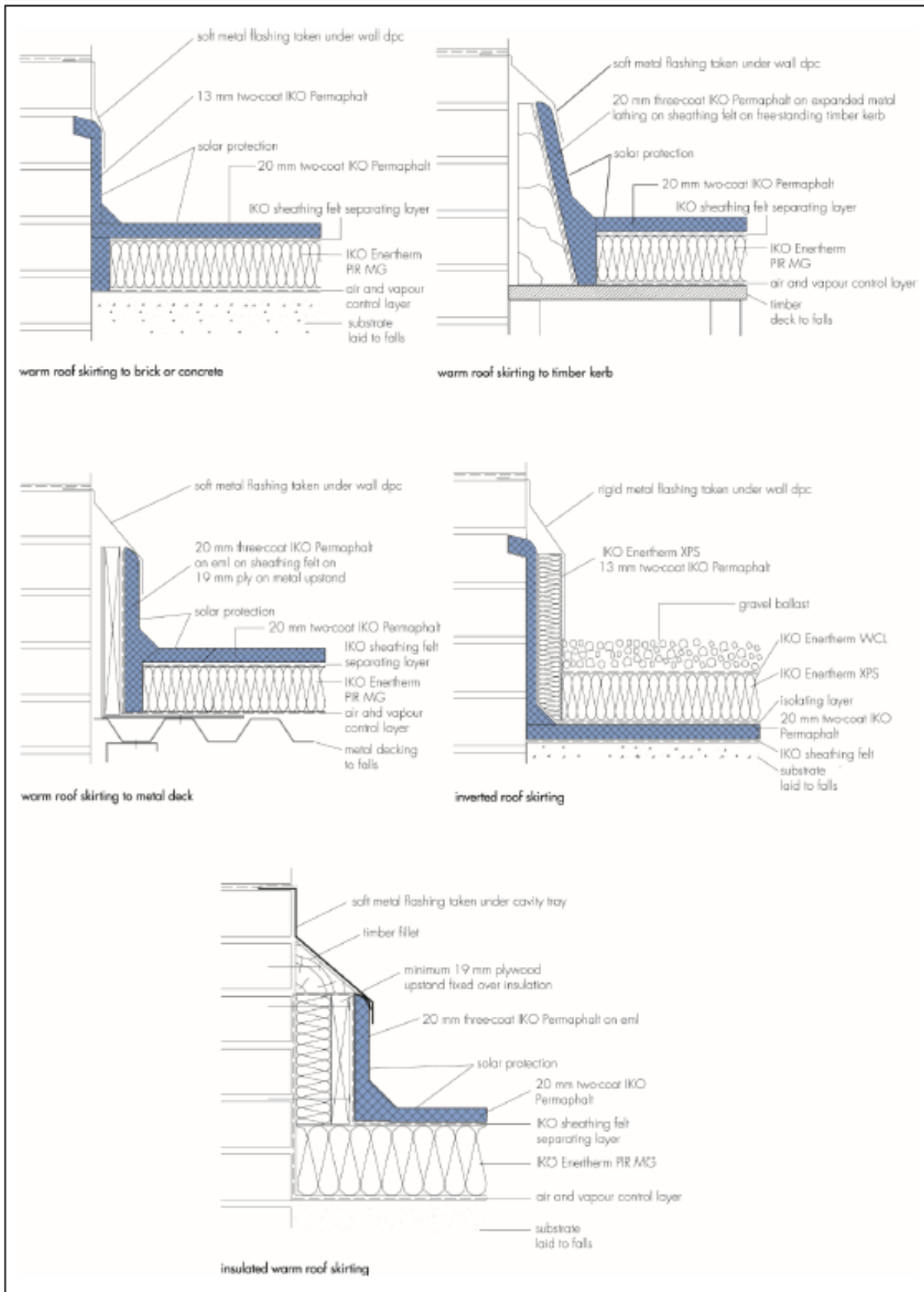
The Certificate Holder has taken responsibility for manufacturing a carbon neutral product. Details of the carbon neutrality of the product can be provided by the Certificate Holder.

2.7.3 RECYCLABILITY

The system comprises of polymer-modified bitumen and graded aggregates that can be recycled.

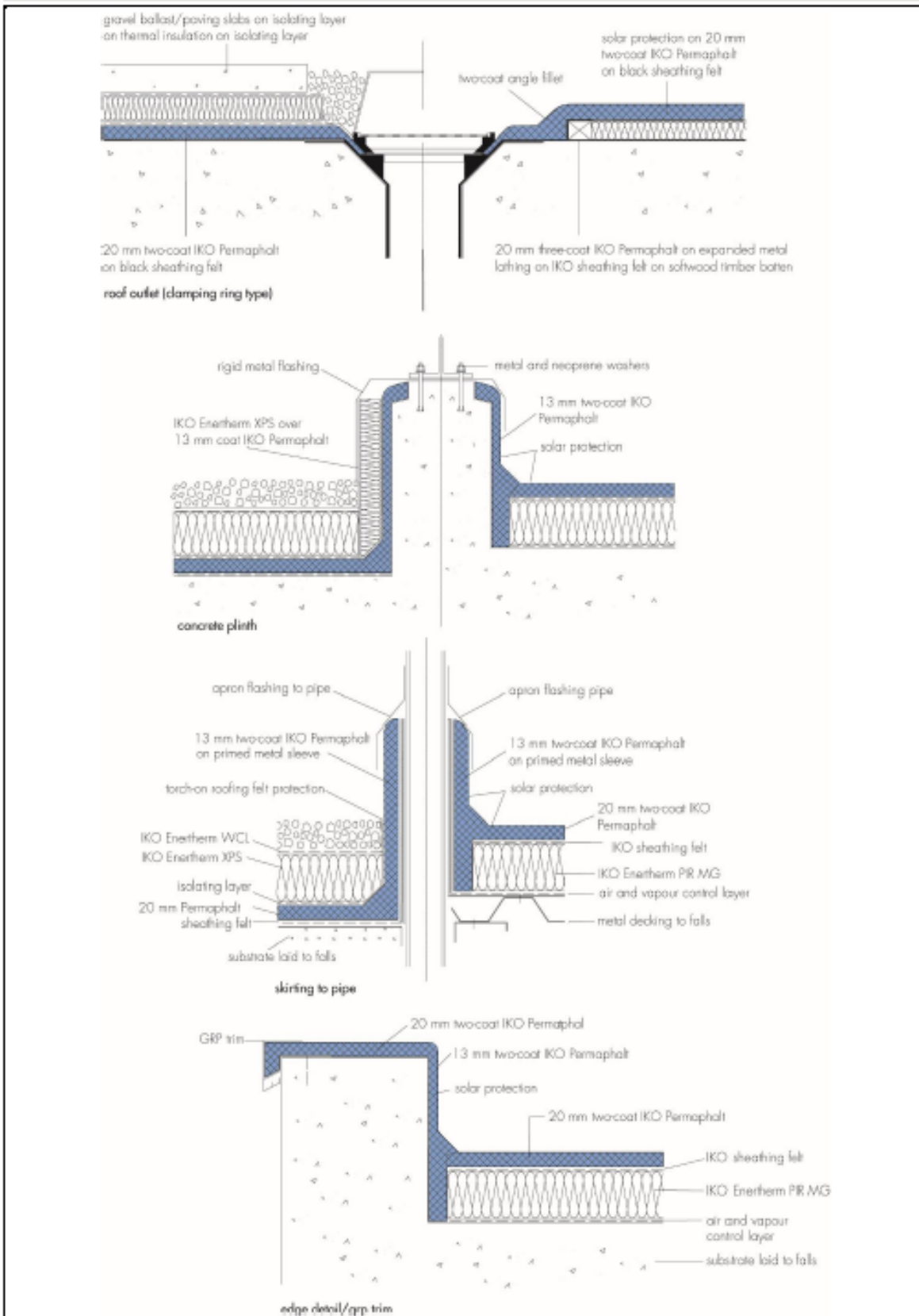
2.8 TYPICAL INSTALLATION DETAILS

Figure 2 Typical installation details



2.8 TYPICAL INSTALLATION DETAILS (CONTINUED)

Figure 2 Typical installation details (continued)



3.0 GENERAL

3.1 IKO Permaphalt is satisfactory for use as a waterproofing layer on flat and zero fall roofs with limited access, podiums, green roofs, roof gardens, biodiverse / brown roofs and blue roofs in combination with a storm water attenuation system⁽¹⁾ in accordance with the relevant clauses of BS 8212, BS 8000-0, BS 8000-4 and, where appropriate, BS 8217. Typical design specifications are shown in Figure 1.

(1) The storm water attenuation system is outside the scope of the Certificate.

3.2 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 and BS 8218.

3.3 The following terms are defined for the purpose of this Certificate as:

- roof garden (intensive) — a roof with a substantial layer of growing medium with planting that can include shrubs and trees, generally accessible to pedestrians
- green roof (extensive) — a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wild flower species
- brown roof — a roof with a growing medium selected to allow indigenous plant species to inhabit the roof over time; no deliberate planting is undertaken
- biodiverse roof — a roof where deliberate planting is undertaken to replicate the ecology of the local environment
- blue roof — a flat roof designed to allow controlled attenuation of rain fall during heavy and storm events, as part of sustainable urban drainage systems (SUDS). Guidance for the design and construction of blue roofs is available in the NFRC Technical Guidance Note for the construction and design of Blue Roofs.

3.4 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the system must be provided (see section 2.6.2 of this Certificate and the relevant clauses of the Certificate holder's installation instructions).

3.5 Flat roofs are defined for the purpose of this Certificate as those having a weathered surface at no more than ten degrees (10°) to the horizontal.

3.6 Zero fall roofs are defined for the purpose of this Certificate as those having a finished fall which can vary between 0 and 1:80. Reference should

also be made to appropriate Mastic Asphalt Council Association guidance documents.

3.7 Structural decks to which the system is to be applied must be suitable to transmit the dead and imposed loads experienced in service. Imposed loads, dead loading and wind loads are calculated in accordance with IS EN 1991-1-1, IS EN 1991-1-3 and IS EN 1991-1-4, and their Irish National Annexes.

3.8 Recommendations for the design of green roofs and roof garden specifications are available within the latest edition of The GRO Green Roof Code – Green Roof Code of Best Practice for the UK as well as the FLL document – Guidelines for the Planning, Construction and Maintenance of Green Roofs.

3.9 The drainage systems for inverted roofs, zero fall roofs, green roofs or roof gardens must be correctly designed, and the following points should be addressed:

- provision made for access for maintenance purposes
- for zero fall roofs, it is particularly important to identify the correct drainage points, to ensure that drainage is sufficient and effective to avoid ponding water
- dead loads for green roofs and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer

3.10 Insulation materials to be used in conjunction with the system must be in accordance with the Certificate holder's instructions and be in accordance with the relevant clauses of BS 6229 and BS 8218.

3.11 Contact with oil-based products must be avoided as the system may not be compatible with these types of products. If contact with such products the advice of the Certificate holder must be sought.

3.12 The system is impervious to water and, when used as described in this Certificate, can enable a roof to comply with the requirements of the Building Regulations.

3.13 The system requires a suitable protection layer to achieve the necessary combustibility rating applicable to each project. Fire test reports for various design specifications are available from the Certificate Holder. For green roof specifications, plants used may allow flame spread across the roof. This should be taken into consideration when selecting suitable plants for

the roof. Appropriate planting irrigation and/or protection should be applied to ensure the overall fire-rating of the roof is not compromised.

3.14 Wind loads should be assessed in accordance with I.S. EN 1991-1-4:2005 + A1:2010 and the Irish National Annex on a project specific basis, taking due consideration of the roof build-up for the project such as; any added surfacing such as green roofs, paving slabs, gravel, blue roof water retention, etc. The resistance to wind uplift of the waterproof covering and finishes on a flat roof should be assessed having regard to the dead weight of those materials and to the nature, type and disposition of their attachment to the slab or deck, in accordance with BS 8217 and IS EN 16002.

3.15 On blue roof specifications, it may be necessary to increase the normal level of protection to avoid flotation and care should be taken to ensure that the roof structure can withstand this extra loading in addition to the retained rainwater. Where the insulation is secured by ballast, the minimum aggregate size should be sufficient to prevent wind scour.

3.16 The system can accept, without damage, the thermal movement likely to occur in practice and the limited foot traffic and light concentrated loads associated with installation and maintenance operations. Where access exceeding this is envisaged, this should be taken into account when determining the application thickness and surface protection. Reasonable care is required to avoid prolonged point loading by heavy and/or sharp objects.

3.17 Calculations of the thermal transmittance (U-value) of specific roof build-ups should be carried out in accordance with IS EN ISO 6946 using thermal conductivity (λ) values of the products used as defined by the certificate holder. The U-value of a construction will depend on the materials used and the design. For retrofit installations on existing dwellings guidance should be sought from the certificate holder on achievable U-values as the actual U-value of installation will depend on the construction of the existing building elements. Guidance in this respect, and on limiting heat loss by air infiltration, shall be sought from the certificate holder and by reference to the DoEHLG publication Limiting Thermal Bridging & Air Infiltration – Acceptable Construction Details.

3.18 The internal condensation risk of the roof must be assessed in accordance with BS 6229 and BS 5250. An approved vapour barrier (AVCL) is required on the warm side of the insulation in all instances.

3.19 The risk of interstitial condensation in the roof build-up is dependent on several factors including roof design. Reference should be made

to BS 6229 and BS 5250. To avoid the risk of interstitial condensation in cold flat roofs, an AVCL should be provided on the warm side of the insulation and there should be a cross ventilated void, not less than 50mm deep, between the slab or deck and the insulation. Ventilation openings shall be provided to every roof void along two opposite sides of the roof. The risk of interstitial condensation in warm flat roofs is dependent on the nature of the supporting structure. As there is a risk of interstitial condensation forming between the thermal insulation and the waterproofing covering, an AVCL with a vapour resistance at least equal to that of the waterproofing covering should be installed immediately above the supporting structure, wrapped and sealed at the perimeter and at all penetrations through the roof covering. For inverted flat roofs, it is essential that the thermal insulation used resists water absorption and is sufficiently loadbearing to support the protective covering or ballast where used. When building elements do not follow the principles of BS 5250, a robust hygrothermal assessment to either I.S. EN 15026 or I.S. EN ISO 13788 must be considered. Care should be taken to provide adequate ventilation, particularly in rooms expected to experience high humidity, and to ensure the integrity of vapour control layers and linings against vapour ingress.

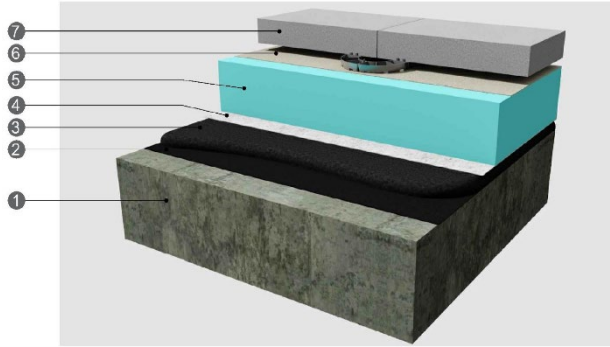
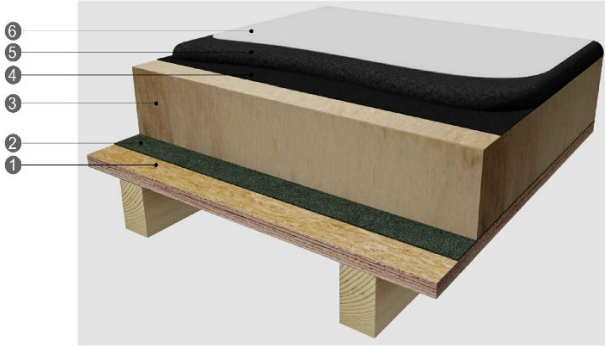
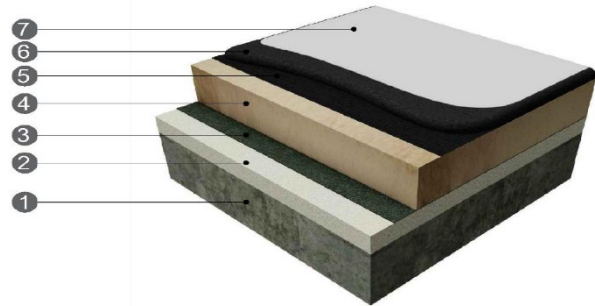
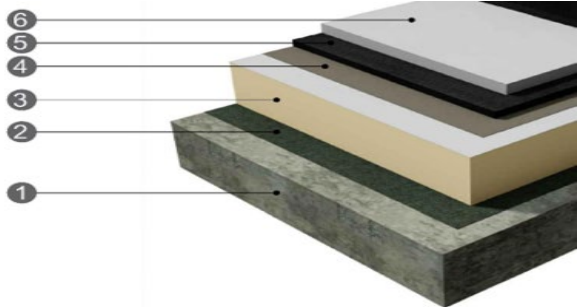
3.20 For retrofit installation, when improving the thermal performance of the external envelope of an existing building, through to upgrading of roof insulation as part of a roof build-up, designers need to consider the impact of these improvements on other untouched elements of the building. When bridged junctions meet the requirements of TGD Part L, Appendix D - table D1, the coldest internal surface temperature will satisfy the requirements of section D2, namely that the temperature factor (f_{Rsi}) shall be equal to or greater than 0.75. As a result, best practice will have been adopted in order to limit the risk of internal surface condensation which can result in dampness and mould growth. When site limiting factors give rise to substandard level of insulation at bridged junctions, guidance should be sought from the certificate holder as to acceptable minimum requirements. When insulating buildings, the recommendations of BS 5250 should be followed to minimise the risk of condensation within the building elements and structures. Roofs will adequately limit the risk of surface condensation where the thermal transmittance (U-value) does not exceed $0.35 \text{ W/m}^2 \text{ K}$ at any point, and openings and junctions with other elements are designed in accordance with the DoEHLG publication Limiting Thermal Bridging & Air Infiltration – Acceptable Construction Details (ACD).

3.21 The linear thermal transmittance ψ (Psi) describes the heat loss associated with junctions and around openings. When all building junctions

are shown to be equivalent or better than those detailed in the DoEHLG Acceptable Construction Details, then it is acceptable to use the linear thermal transmittance values outline in Table D1 of Appendix D of TGD to Part L of the Building Regulations. When all bridged junctions within a building comply with the requirements of Table D1 of appendix D of TGD to Part L, the improved 'y' factor of 0.08 can be entered into the Dwelling Energy Assessment Procedure (DEAP) Building Energy Rating (BER) calculation. Where either of the above options are shown to be valid, or when the required values cannot be achieved, all relevant details should be recorded for that project for use in future BER calculations. Ψ -values for other junctions outside the scope of this certificate should be assessed in accordance with the BRE IP1/06 "Assessing the effects of thermal bridging at junctions and around openings" and BRE Report BR 497 in accordance with appendix D of TGD to Part L of the Building Regulations.

3.22 Adequate room and roof ventilation must be provided in accordance with TGD Part F of the Building Regulations for all installations. This will also limit the potential for Interstitial Condensation and Internal Surface condensation as detailed in Cl. 3.18 of this certificate. In addition, a cross-ventilation shall be provided in cold flat roof designs as detailed in Cl. 3.19 of this certificate.

3.17 TYPICAL DESIGN SPECIFICATIONS

Design Detail ³	Typical Roof Specifications incorporating the Permaphalt Roof Waterproofing System	Layer No.	Layer Description
Inverted Roof		1	Concrete Roof Deck to BS 6229
		2	Separating membranes to BS 8218.
		3	20mm in two coats of Permaphalt
		4	Isolating Membrane to BS 8218
		5	Insulation Layer
		6	Water Control Layer
		7	Paving Slabs on proprietary paving supports
Warm Roof on Plywood Roof Deck		1	Plywood Roof Deck to 6.3.6 of BS 6229
		2	Vapour Control Layer
		3	Insulation Layer
		4	Separating membranes to BS 8218.
		5	20mm in 2 Coats of Permaphalt
		6	Solar Reflective Paint
Warm Roof on Screeded Concrete Deck		1	Concrete Roof Deck to BS 6229
		2	Screed
		3	Vapour Control Layer
		4	Insulation Layer
		5	Separating membranes to BS 8218.
		6	20mm in 2 Coats of Permaphalt
		7	Solar Reflective Paint
Balconies and Terraces		1	Concrete Roof Deck to BS 6229
		2	Vapour Control Layer
		3	Insulation Layer
		4	Separating membranes to BS 8218.
		5	20mm in 2 Coats of Permaphalt
		6	Promenade Tiles

³ Typical design specifications are to illustrate the possible locations of the Permaphalt Waterproofing Layer and must not be used without completing a design in accordance with section 3 of this certificate.

4.1 BEHAVIOUR IN FIRE

The system requires a suitable protection layer to achieve the necessary combustibility rating applicable to each project. Tests were conducted to EN 13501-5 using an accredited laboratory on samples to determine the combustibility of the system incorporating various protection layers. The designation of roof build-ups must be confirmed by test or assessment. Fire test reports for various design specifications are available from the Certificate Holder. Fire tests assessed demonstrate that the system can achieve a B_{roof}(t4) rating.

4.2 LIQUID WATER PENETRATION

Test data obtained by NSAI Agrément confirms that the system is watertight when installed in accordance with this certificate and the Certificate Holder's instructions.

4.3 RESISTANCE TO MECHANICAL DAMAGE

The systems can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as for maintenance of lift equipment, a walkway should be provided.

4.4 CHARACTERISATION TESTS

Characterisation test data obtained by NSAI Agrément was reviewed to establish:

- Ash Content
- Softening Point
- Penetration
- Density
- tensile strength and elongation on unaged and heat aged samples
- dimensional stability
- water vapour permeability
- hardness on unaged and heat aged samples
- resistance to water pressure
- flow resistance
- static indentation on soft and hard substrates
- hard body impact at -10 and +20°C.

4.5 LOW TEMPERATURE FLEXIBILITY

Additional test data comparing the properties of IKO Permaphalt and traditional grades of mastic asphalt at low temperatures, supplied from a suitable test authority, were evaluated by the NSAI. It was concluded that the system has improved flexibility at low temperatures.

4.6 MANUFACTURING PROCESS

The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used to formulate the Permaphalt compound.

The NSAI has assessed and agreed the following with respect to the quality control of the waterproofing membrane:

- The quality control procedures and product testing to be undertaken have been agreed, documented, and implemented within the company quality management system. The management system of IKO PLC has been assessed and registered as meeting the requirements of IS EN ISO 9001 : 2015 by BSI (Certificate Q05233), IS EN ISO 14001 : 2015 by Lucideon (Certificate 24709) and BES 6001 : Issue 3.1 by Lucideon (Certificate 24703).
- The quality control procedures implemented for batches of incoming materials have been assessed and agreed.
- The production process has been audited and verified that it is in accordance with the documented process.
- The investigative procedures and management of non-conformities has been evaluated for effectiveness.
- Agreed to verify the above measures on a regular basis through a surveillance process.

4.7 INSTALLATION

Site visits were conducted to assess the practicability of installation in accordance with the installation manuals, codes of practice and supervision provided by the certificate holder.

5.0 CONDITIONS OF CERTIFICATION

5.1 National Standards Authority of Ireland ("NSAI") following consultation with NSAI Agrément has assessed the performance and method of installation of the product/process and the quality of the materials used in its manufacture and certifies the product/process to be fit for the use for which it is certified provided that it is manufactured, installed, used and maintained in accordance with the descriptions and specifications set out in this Certificate and in accordance with the manufacturer's instructions and usual trade practice. This Certificate shall remain valid for five years from date of last revision date so long as:

- (a) the specification of the product is unchanged.
- (b) the Building Regulations 1997 to 2019 and any other regulation or standard applicable to the product/process, its use or installation remains unchanged.
- (c) the product continues to be assessed for the quality of its manufacture and marking by NSAI.
- (d) no new information becomes available which in the opinion of the NSAI, would preclude the granting of the Certificate.
- (e) the product or process continues to be manufactured, installed, used and maintained in accordance with the description, specifications and safety recommendations set out in this certificate.
- (f) the registration and/or surveillance fees due to NSAI Agrément are paid.

5.2 The NSAI Agrément mark and certification number may only be used on or in relation to product/processes in respect of which a valid Certificate exists. If the Certificate becomes invalid the Certificate holder must not use the NSAI Agrément mark and certification number and must remove them from the products already marked.

5.3 In granting Certification, the NSAI makes no representation as to;

- (a) the absence or presence of patent rights subsisting in the product/process; or
- (b) the legal right of the Certificate holder to market, install or maintain the product/process; or
- (c) whether individual products have been manufactured or installed by the Certificate holder in accordance with the descriptions and specifications set out in this Certificate.

5.4 This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which may be appropriate.

5.5 Any recommendations contained in this Certificate relating to the safe use of the certified product/process are preconditions to the validity of the Certificate. However, the NSAI does not certify that the manufacture or installation of the certified product or process in accordance with the descriptions and specifications set out in this Certificate will satisfy the requirements of the Safety, Health and Welfare at Work Act 2005, or of any other current or future common law duty of care owed by the manufacturer or by the Certificate holder.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process.

5.7 Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standards, manufacturer's instructions, or similar publication, it shall be construed as reference to such publication in the form in which it is in force at the date of this Certification.

Bibliography

- [1] BS 6229 : 2018 Flat roofs with continuously supported flexible waterproof coverings — Code of practice
- [2] BS 6925 : 1988 Specification for mastic asphalt for building and civil engineering (limestone aggregate)
- [3] BS 8000-0 : 2014 Workmanship on construction sites — Introduction and general principals
- [4] BS 8000-4 : 1989 Workmanship on building sites — Code of practice for waterproofing
- [5] BS 8217 : 2005 Reinforced bitumen membranes for roofing — Code of practice
- [6] BS 8218 : 1998 Code of practice for mastic asphalt roofing
- [7] IS EN 1991-1-1 : 2002 Eurocode 1 : Actions on structures — General actions
- [8] NA to IS EN 1991-1-1 : 2002 UK National Annex to Eurocode 1 : Actions on structures — General actions
- [9] IS EN 1991-1-3 : 2003 + A1 : 2015 Eurocode 1 : Actions on structures — General actions — Snow loads
- [10] NA to + A2 : 18 IS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to Eurocode 1 : Actions on structures — General actions — Snow loads
- [11] IS EN 1991-1-4 : 2005 + A1 : 2010 Eurocode 1 — Actions on structures — General actions — Wind actions
- [12] NA to IS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions
- [13] IS EN 13501-5 : 2005 + A1 : 2009 Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests
- [14] IS EN 13501-5 : 2016 Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests
- [15] IS EN ISO 9001 : 2015 Quality management systems — Requirements
- [16] CEN/TS 1187 : 2012 Test method for external fire exposure to roofs

NSAI Agrément

This Certificate No. **23/0439** is accordingly granted by the NSAI to **IKO Ltd** on behalf of NSAI Agrément.

Date of Issue: 06th October 2023

Signed



Kevin D. Mullaney
Director of Certification, NSAI

Readers may check that the status of this Certificate has not changed by contacting NSAI Agrément, NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (01) 807 3800. Fax: (01) 807 3842. www.nsai.ie